UNITED STATES ARMY
TARDEC
TANK-AUTOMOTIVE RESEARCH DEVELOPMENT AND ENGINEERING CENTER

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U.S. ARMY TARDEC RAPIDLY DEVELOPS LIFE-SAVING ARMOR SOLUTION FOR OPERATION IRAQI FREEDOM

M939 Armor Kit Provides Highest Level of Protection Ever Tested for Tactical Vehicle Armor Kits

WARREN, Mich. – Feb. 7, 2005 – The U.S. Army's Tank Automotive Research, Development and Engineering Center (TARDEC) today announced that its new Crew Protection Armor Kits, designed to outfit the M939 vehicle fleet, will be protecting our warfighters in Operation Iraqi Freedom.

M939 kit production has begun at six U.S. Army Tank-automotive and Armaments Command (TACOM) Ground Systems Industrial Enterprise (GSIE) installations, with three models already deployed to Kuwait just eight months after the concept originated. TARDEC personnel began developing and fabricating an initial prototype armor kit just two months after the original requirements document was released. Two months later, the armor was assembled and installed onto the M939 vehicle, after which two kits were sent to the Army Test and Evaluation Center at Aberdeen Proving Grounds to undergo rigorous testing scenarios. After two months of testing at Aberdeen, TARDEC spent the next two months making minor adjustments to the kits and transferring full production plans to GSIE before producing the three kits to be sent into theater.

"Supporting our Joint Forces in Operation Iraqi Freedom requires us to mobilize quickly to provide the best supplies and equipment to our troops," said Dr. Richard McClelland, Director of TARDEC. "This is another example of TARDEC's responsiveness to provide our brave men and women with the vehicle survivability systems they desperately need to fulfill their missions."

The M939 add-on armor kit was developed in response to a needs statement from Central Command (CENTCOM) referring to truck drivers in Iraq and Afghanistan needing better protection against small arms fire and Improvised Explosive Devices (IEDs). Crew protection was the most vital requirement for the armor kits. CENTCOM also stated requirements for a movable side window for ventilation and firing purposes, gun ring, weapons platform, communications rack and a cab air conditioning unit to support the M939 basic, A1 and A2 family of vehicles.

M939 Crew Protection Armor Kit

The M939 Crew Protection Armor Kit consists of an armored cab, fire wall protection, floor/fender mine protection, a weapons station and an air conditioning unit.
TARDEC engineers fitted the armored cab's roof with the weapons station that is used on the HMMWV, permitting Soldiers to mount required weapon platforms. Capitalizing on Soldier comfort and making additional room for the air conditioning unit, TARDEC installed two new air ride seats for the vehicle crew. Rationale behind the new seats also fostered from requests to have better adjustments and increased platform protection, both of which the new seat adhered too.

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Adding additional armor to the vehicle dramatically increased the need of an air cooling system to reduce crew stress. To provide a cooling solution for the Soldier, TARDEC collaborated with Red Dot Corporation, which is based in Seattle, Wash., to modify the existing HMMWV air conditioning unit to fit the M939 vehicles. By adopting the commonalities between the HMMWV and the M939 vehicle systems, TARDEC and Red Dot were able to simplify the number of parts and repair procedures required to implement the air conditioning system into the M939. Within two weeks of inception, a functional air conditioning system was installed into the M939 vehicle system.

"This was and continues to be an all-out effort that has no margin for error," said Terry Avery, Project Engineer, TARDEC Emerging Technologies Team. "Every delay or mistake results in potential casualties to our troops. There is no greater motivation than to have the ability to provide life-saving equipment."

TARDEC, headquartered at the Detroit Arsenal, Warren, Michigan, is the nation's laboratory for advanced military automotive technology. TARDEC's mission is to research, develop, engineer, leverage and integrate advanced technology into ground systems and support equipment throughout the life cycle. TARDEC's 1,100 associates develop and maintain vehicles for all U.S. Armed Forces, many federal agencies and more than 60 foreign countries. TARDEC pushes the state-of-the-art in programs including power and energy, advanced collaborative environments, robotics, electric drive and embedded simulation to provide the Army with the materiel solutions it demands. TARDEC leads several Army Future Force science and technology efforts – collaborating with the Army's combat developers – to ensure we field robust equipment that meets aggressive cost, schedule and performance standards.

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